

NOTE

First Report of *Pryeria sinica* Moore (Lepidoptera: Zygaenidae) in North America

Pryeria Moore is a monotypic genus accommodating *P. sinica* Moore, 1877. It is eastern Palaearctic, recorded from Russia (Far East), China, Korea, Japan, and Taiwan (Yen and Horie 1997). The holotype of *P. sinica*, deposited in The Natural History Museum, London, is from China; the holotype of *Neopryeria jezoensis* Matsumura, 1927, the only synonym of *P. sinica*, deposited in the Entomological Institute, Hokkaido University, Sapporo, Japan, is from Japan. The species has been recorded only recently in Taiwan, where it occurs primarily in the subalpine zone (Yen and Horie 1997).

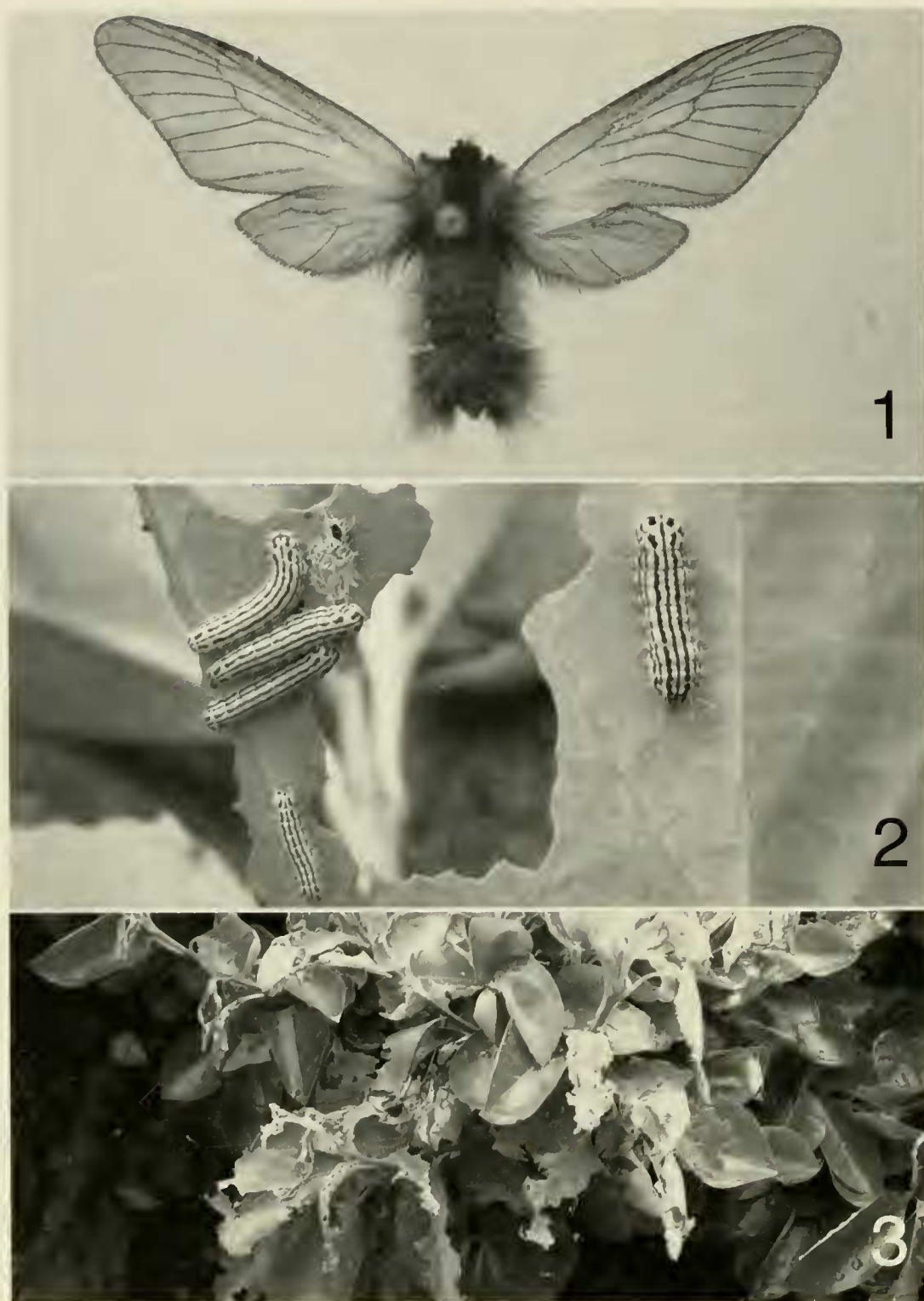
Pryeria sinica is moderately divergent from other zygaenids in several superficial and morphological features. Although formerly associated with *Phauda* Walker (Phaudinae) (Inoue 1982), its assignment to Zygaeninae was convincingly demonstrated by Alberti (1954) and Naumann (1987, 1988). According to Naumann (1987), the genus represents the most primitive lineage of the subfamily.

Food plants of *P. sinica* appear to be restricted to Celastraceae, which contain acyanogenic compounds (Epstein et al. 1998). Two genera have been reported as host plants—*Celastrus* and *Euonymus*. Yen and Horie (1997) list specimens reared from *Celastrus punctatus* Thunb., *Euonymus sieboldianus* Blume, and *Euonymus japonica* Thunb. They indicate that the geographical range of *Celastrus punctatus*, the documented host plant in Taiwan, extends to south China and Japan, which agrees well with the distribution of *P. sinica*. Sato (1969) reported rearing larvae on *Euonymus sieboldianus*, *Euonymus alatus* (Thunb.) f. *ciliatidentatus* (Fr. et Sar.) and *Celastrus orbicularis* Thunb. Yen and Horie (1997) were unsuccessful in transferring

larvae from *Celastrus* to *Euonymus* in the laboratory, suggesting the possibility of a degree of geographic host specialization.

Although Cave and Redlin (1996) identified *P. sinica* as an important plant pest of *Buxus* in Korea and China, this is likely an error. According to Yen (personal communication), the common name of *Pryeria sinica* in China is translated as the “buxus zygaenid moth”; however, the common name for *Buxus* and *Euonymus* is exactly the same. As a result, hosts for this species are common confused in the entomological literature of China. According to Yen, *Euonymus* and *Buxus* frequently occur sympatrically in the mountains of Japan and Taiwan, and he has never observed larvae of *P. sinica* on *Buxus*.

In April and May of 2001, 2002, and 2003 large infestations of larvae of *P. sinica* were reported on ornamental *Euonymus* in the city of Fairfax, Fairfax County, Virginia, U.S.A., causing severe damage to the plants. In March 2003 adult specimens were submitted to the USDA Systematic Entomology Laboratory at the National Museum of Natural History where they were identified as *P. sinica*. Subsequently, specimens were reported from Glen Burnie, Anne Arundel County, Maryland, in May 2003. The species previously was unreported from North America. The origins of the Fairfax and Glen Burnie populations are unknown, but introduction via nursery stock from the Far East seems the most likely pathway. Based on the success of *P. sinica* in northern Virginia on ornamental *Euonymus*—surviving local winter conditions and producing considerable progeny—and the degree of damage at the site of the infestation, *P. sinica* has the potential to become an important pest in situations where *Euonymus* is used in ornamental landscaping.



Figs. 1–3. *Pryeria sinica*. 1, Adult. 2, Larvae. 3, Damage caused by larvae on *Euonymus*.

The life cycle of *P. sinica* has been studied in detail by several workers (e.g., Ishii et al. 1983, Shiotsu and Arakawa 1982, Shiotsu and Tsubaki 1986, Tamura 1981, Tamura and Ouchi 1977, Tsubaki 1981, Tsubaki and Shiotsu 1982, Wipking and Naumann 1992). Eggs are laid in clusters on the stems of the host plant in November and December. They are ovoid, flattened, and covered with scales from the female ab-

dominal hair tufts. At 10–18°C, the egg stage lasts about 80 days. Larvae hatch in March and April and exhibit a group-feeding behavior (Tsubaki 1981, Tsubaki and Shiotsu 1982). They may be found on the upper or under surface of the leaves of the food plant, feeding on the leaf edges (Fig. 3). They readily drop on a line of silk when disturbed. Pupation occurs in late May, with an obligate pupal diapause that lasts until

November, when adults emerge. Adults are diurnal, with a slow, fluttering flight generally 1–5 m above the ground. Adults are active from about 0900–1500 hours. They typically mate during the daytime and remain coupled for about 20 hours. Oviposition takes place during the day, usually within a few hours after copulation.

The adult of *P. sinica* is a medium-sized wasp-mimic (Fig. 1), with a forewing length of 10–13 mm in the male and 12–14 mm in the female. The wings are transparent with a few scattered black scales and a small, diffuse patch of yellow-orange scales in the basal portion of the forewing. Antennae are bipectinate in the male, nonpectinate but clubbed in the female. The distinct forewing coloration, highly reduced proboscis, and tufts of orange scales at the end of the abdomen distinguish this species from all other Zygaenidae. Additional illustrations of the adult can be found in Yen and Horie (1997) and Epstein et al. (1998).

The mature larva (Fig. 2) is 15–22 mm in length. The color is assumed to be aposomatic (Johki and Hidaka 1979): a white ground color with dorsal, subdorsal, medial, and submedial black longitudinal stripes (comprised of adjacent spots), and a yellow venter. Chaetotaxy is described in detail by Yen and Horie (1997); additional illustrations of the larva can be found in Nakajima (1987) and Yen and Horie (1997).

The pupa is 8–10 mm in length, 4.0–4.5 mm in width, stout, and dorsoventrally compressed, enclosed in a tough, relatively smooth, beige, flattened, semispherical cocoon. The cocoon typically is spun within a folded leaf or between adjacent leaves on the live plant. Coloration of the pupa is similar to that of the larva with dorsal, subdorsal, submedial, and medial black longitudinal stripes (see Yen and Horie 1997 for illustrations).

The species is attacked by at least two parasitoids—*Agrothereutes minousubae* Nakanishi (Hymenoptera: Ichneumonidae) (Shiotsu and Arakawa 1982, Shiotsu and Tsubaki 1986) and *Bessa parallela* (Mei-

gen) (= *B. selecta fugax* Rondani or *B. fugax* Rondani) (Diptera: Tachinidae) (Shima 1973). Based on laboratory studies, larvae of *P. sinica* produce an (E)-phytol that induces predation by the generalist predatory stinkbug, *Eocanthecona furcellata* (Wolff) (Hemiptera: Pentatomidae) (Yasuda 1998).

Given the widespread use of *Euonymus* as ornamentals, especially in the northeastern U.S., the potential seems high for the persistence and expansion of the present infestation in the U.S.

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